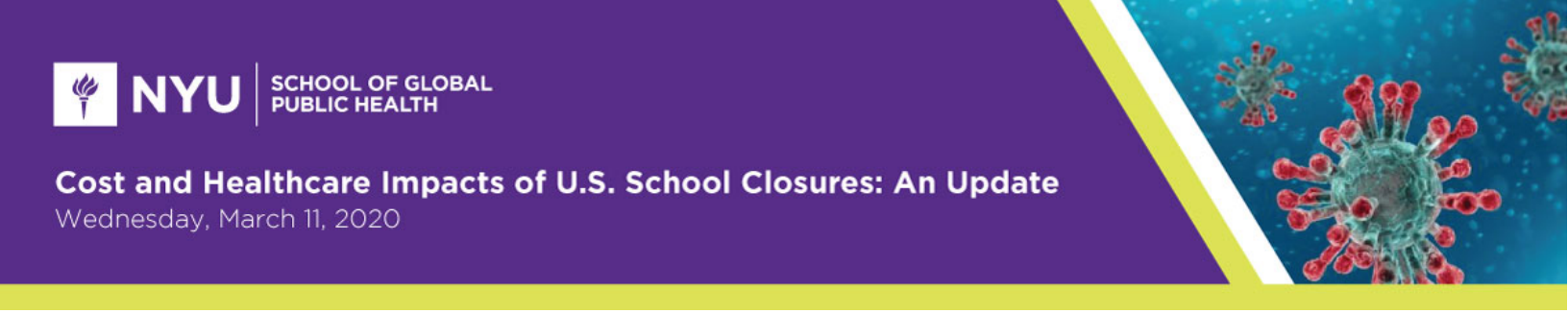

Cost and Healthcare Impacts of U.S. School Closures: An Update

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School closures can reduce the transmission of disease by reducing contacts between susceptible and infectious individuals. COVID-19 has led to unprecedented school closures in several countries beyond China, including Japan, Italy, and India. Closures are already being instituted within several US states. As cases mount, there will be increasing pressure to extend school closings in the US. A rough gauge of their economic impact (and potential unintended consequences) may therefore contribute to the public debate on this matter. To that end, the following Table is an inflation-adjusted update of the analysis published in Howard Lempel, Joshua M. Epstein, and Ross A. Hammond. "Economic Cost and Health Care Workforce Effects of School Closures in the US." *PLoS Currents, 2009, October 5*. doi: 10.1371/currents. RRN1051PMID: 20025205.

The main conclusion is this: **A one-month closure of all US schools and daycare centers could cost the US economy upwards of $50 billion in lost productivity due to absenteeism, which would represent 0.2% (two-tenths of a percent) of GDP.** Widespread closures could particularly affect the front-line health care workforce, potentially degrading the epidemic response.

Analysis:

The Bureau of Labor Statistics estimates that $1.00 dollars in 2008 equals $1.20 dollars in 2020, or that, due to inflation, the purchasing power of 1 2008 dollar is 1.2 2020 dollars. Inflating the estimates published in Lempel, Epstein, and Hammond (2009) produces the following Table:

Economic Costs of Absenteeism Due to School Closures in the United States.

(In Billions of 2020 US Dollars and Percent of GDP)

Closure Length	Low Estimate	Base Estimate	High Estimate
2 weeks	6.2 (0.03%)	25.6 (0.12%)	28.3 (0.13%)
4 weeks	12.7 (0.06%)	**51.1 (0.24%)**	56.5 (0.26%)
6 weeks	18.7 (0.09%)	76.7 (0.36%)	84.8 (0.40%)
12 weeks	37.6 (0.18%)	153.4 (0.72%)	169.6 (0.79%)

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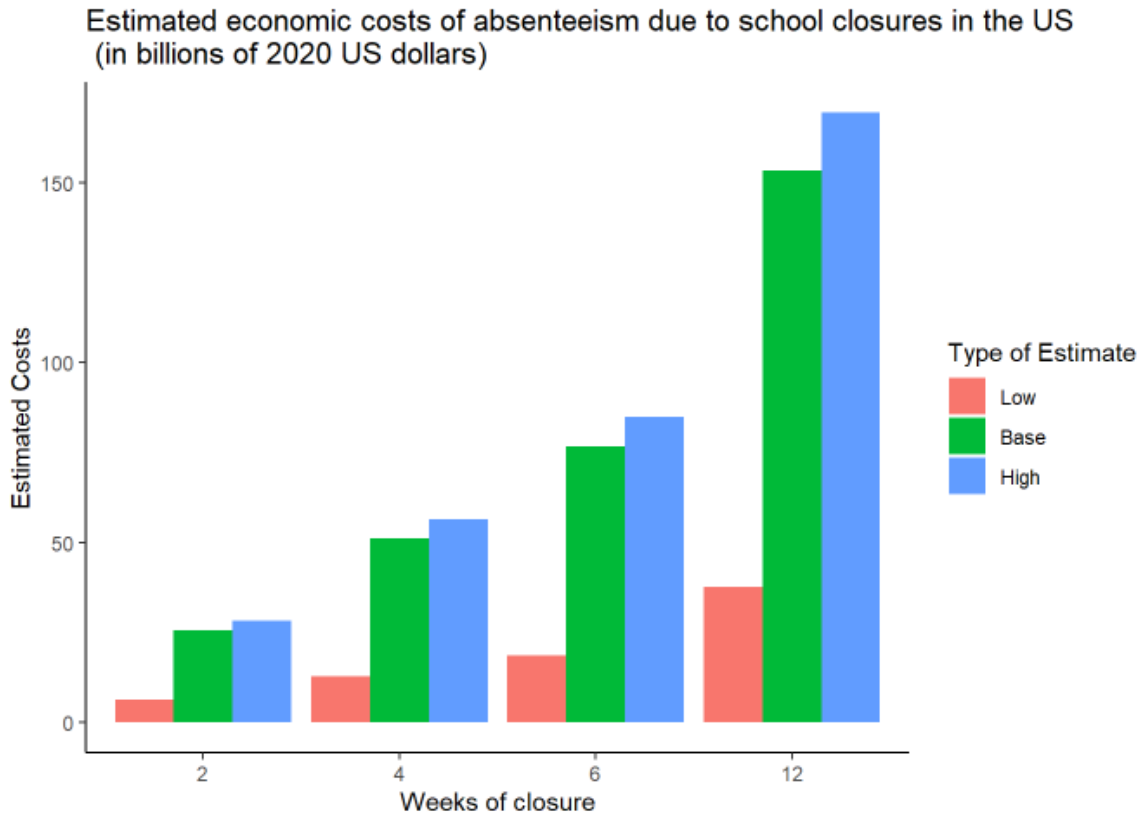
For each duration of full school closure, a Low, Base, and High estimate of total cost is estimated, with the associated GDP loss in parentheses. The same cost data presented as a Chart are below.



Main Conclusion: A month-long closure of all US schools and daycare centers could cost $51.1 billion, which would represent 0.24% of US GDP.[3]

This is an aggregate number. Costs would be highly heterogeneous depending on the scale and region of the closure.

General Considerations:

Though variable by specific setting, school closures raise the following issues:

Inequality:

- Low-income single earner households would be affected disproportionately.
- Telecommuting may not be possible and these workers may not get paid leave to care for children.
- Many of their children normally get two to three meals per day at school, which would cease.

[3] $21427.1 billion in 2019.

Amplifies Epidemic:

- Health care worker absenteeism also degrades the epidemic response.
- For example, nurses cannot telecommute to work.
- This cadre is predominantly women, many of whom would need to care for children.

Methodology:

The methodology is precisely as published in Lempel et al (2009). We have not updated any of the detailed analyses underlying our 2009 estimates. In the interest of timeliness, we have simply updated those estimates for inflation. New detailed analyses of absenteeism, school systems, as well as household and health care sector impacts could change these estimates, up or down. However, the orders of disruptive magnitude are likely to remain comparable to the 2009 estimates, and if costs are adjusted for inflation, they are as given above.

The accuracy of this update of the 2009 analysis could be affected by two significant changes in socio-economic circumstances since then: unemployment and telecommuting. In June 2009, during the recession, the unemployment rate was 9.5%, which peaked at 10.0% in October of that year (Bureau of Labor Statistics). The current unemployment rate (leaving aside interceding differences in accounting methods) is 3.6%, far lower than in 2009. Thus, relative to 2009, there are *fewer* unemployed workers to step in and take up the slack for absentees. Therefore, the true impact may exceed our estimate.

On the other hand, telecommuting has increased substantially since 2009. Some estimates (Global Workplace Analytics) show a 91% increase over the last decade. This trend could mitigate the impact of absenteeism. However, the *total* is still only 3.4% of the US workforce. It is concentrated primarily in white collar strata. Moreover, as noted above, for health care workers specifically (e.g., ICU nurses), telecommuting is not a practical option.

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